

What is claimed is:

1 1(original). An apparatus for assessing operation of a system under test, the
2 system being operable to process at least one video signal and a plurality of
3 audio signals corresponding to audio channels, the apparatus comprising:
4 a source of an audio-video program signal in a digital format having
5 successive samples of video data and accompanying audio data for plural
6 audio channels, the source being coupleable to an input of the system under
7 test;
8 an audio mark generator and a video marker generator, wherein the
9 audio mark generator and the video marker generator respectively produce
10 audio and video data for processing through the system under test;
11 wherein the audio mark generator and the video mark generator are
12 operable upon initiation of a test cycle to insert data into the program signal at
13 the input to the system under test, the data representing an audio mark for a
14 selected one of the audio channels and a video marker having a
15 predetermined timing relationship, said audio mark and said video marker
16 being thereby applied as the input for processing by the system under test;
17 a detector coupleable to an output of the system under test, wherein the
18 detector is operable to receive the program signal, and to sense a timing
19 relationship of the data representing the audio mark for at least one of said
20 audio channels versus the video marker, at the output of the system under
21 test; and,
22 at least one of an audio and visual output coupled to the detector for
23 presenting a sensed result of said timing relationship.

1 2(currently amended). The apparatus of claim 1, wherein the audio mark
2 generator and the video mark generator are configured to apply the audio
3 mark successively to one serial digital audio channel and ~~an a~~ a next serial
4 digital audio channel, proceeding through said audio channels.

1 3(original). The apparatus of claim 1, wherein the detector is operable to test
2 at least one audio channel in addition to said selected one of the audio
3 channels on which the audio mark was applied to the input for processing by
4 the signal under test.

1 4(currently amended). The apparatus of claim 1, wherein the output
2 coupled to the detector presents a time difference and ~~an~~ a leading/lagging
3 indicator for showing which of the audio mark and the video mark preceded
4 the other at the output of the system under test.

1 5(original). The apparatus of claim 3, wherein the detector is operable to test
2 each of said plurality of audio channels for the audio mark.

1 6(original). The apparatus of claim 1, the output coupled to the detector
2 comprises an audio meter display having a variable indicator for each of the
3 audio channels, and wherein the audio meter display momentarily depicts the
4 audio mark when applied to and sensed on the audio channel.

1 7(original). The apparatus of claim 6, further comprising a numeric readout
2 operated by the detector to show a numeric period of time between detection
3 of the video mark and detection of the audio mark on any one of a number of
4 channels represented on the audio meter.

1 8(original). The apparatus of claim 6, wherein the audio meter is configured
2 to provide for a variation in display readout upon detection of a mismatch
3 wherein the audio mark is sensed on a channel that differs from a channel on
4 which the audio mark was applied at the input.

1 9(original). The apparatus of claim 1, wherein at least one of the video mark
2 and the audio mark is applied in a nominal manner whereby one of a video
3 receiver system coupled to the system under test shows a mark visibly in a
4 video display and an audio speaker coupled to the system under test produces
5 an audio mark corresponding to the output of system under test.

1 10(original). A method for testing a digital video processing system operable
2 to process video samples and embedded audio samples, comprising the steps
3 of:

4 providing a digital signal in a format providing for a succession of
5 digitized audio and video samples;

6 inserting into the digital signal a video marker and at least one audio
7 marker, the video marker and the audio marker having a predetermined timing
8 relationship and the audio marker being associated with a predetermined one
9 of a plurality of audio channels;

10 processing the digital signal through a video processing device having
11 an arbitrary effect on at least one of an audio and a video portion of the digital
12 signal;

13 sensing for the video marker an the audio marker at an output of the
14 video processing device;

15 timing a difference between appearance of the audio marker and the
16 video marker at said output of the video processing device; and,
17 reading out said difference.

1 11(original). The method of claim 10, wherein the predetermined timing
2 relationship is achieved by placing the audio marker at a predetermined timing
3 position associated with a marked frame of video data.

1 12(original). The method of claim 10, further comprising reading out an order
2 of which of the audio and video markers was found to be leading and lagging
3 the other of the audio and video markers.

1 13(original). The method of claim 10, further comprising testing for received
2 audio on a plurality of accessible channels in addition to the predetermined
3 one of the audio channels.

1 14(original). The method of claim 13, comprising applying the audio marker
2 successively to each of the plurality of accessible channels in turn, for purpose
3 of identification of said predetermined one of the audio channels, and further
4 comprising testing for the received audio marker on each of the plurality of
5 accessible channels in addition to said predetermined one.

15-19 (cancelled).